

A Multidimensional Approach to the Assessment of Trauma Impact, Recovery and Resiliency: Initial Psychometric Findings

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ABSTRACT. This paper describes the psychometric properties of the Multidimensional Trauma Recovery and Resiliency Scale (MTRR), a

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Likert-type questionnaire designed to assess trauma impact, recovery and resilience on each of eight domains of psychological functioning (Harvey, 1996). An initial series of four studies examined the psychometric properties of the MTRR when used by clinicians rating their patients or by clinical researchers rating co-conducted standardized clinical interviews (MTRR-Is). Findings indicate that the MTRR demonstrated reasonable inter-rater reliability with both clinical and clinical research samples. Internal consistency was sound and, in the clinical sample, the measure drew significant distinctions between patients differing in clinician-estimated recovery status. The implications and limitations of these preliminary findings are discussed. Current and planned inquiries are described. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2003 by The Haworth Press, Inc. All rights reserved.]*

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Over the last decade a number of methods of assessing psychological trauma have been developed. Some focus on the frequency and extent of various types of traumatic exposure (e.g., Briere & Runtz, 1988a, 1988b; Falsetti, Resnick, Kilpatrick, & Freedy, 1994; Gallagher, Flye, Hurt, Stone, & Hull, 1992; Sanders & Becker-Lausen, 1995). Others assess PTSD, as defined by DSM-III-R or IV (Blake, Weathers, Nagy, Kaloupek, Charney, & Keane, 1996; Briere, 1995; Foa, Riggs, Dancu, & Rothbaum, 1993; Keane, Mallow, & Fairbank, 1984). Still others assess a variety of trauma-related symptoms using standardized measures of anxiety, depression, dissociation and other psychiatric complaints (e.g., the Beck Depression Inventory, Beck & Steer, 1987; Beck, 1988; the Dissociative Experiences Scale, Bernstein & Putnam, 1986). Most of these measures rely on patient self-report.

Also during this period, a number of efforts have been made to broaden the concept of psychological trauma and its measurement. Research has uncovered a wide range of symptoms and psychiatric disorders in addition to PTSD that may have origins in traumatic exposure (Brett, 1996; Brown & Finkelhor, 1986; Fontana, 1992; Laufer, 1985; van der Kolk, Perry, & Herman, 1991). Examples include trauma-related anger, interpersonal and sexual difficulties, disturbances in self-functions, self-harming behaviors, dissociative adaptations, borderline personality disorder and a cluster of symptoms that Herman

(1992) has labeled complex PTSD. In recent years, researchers have attempted to capture this symptom picture with other than self-report measures. The Structured Interview for Disorders of Extreme Stress (SIDES), for example, was developed to assess the effects of extreme and prolonged traumatic stress exposure and the validity of a new diagnosis of "Disorders of Extreme Stress—Not Otherwise Specified" (DESNOS; Pelcovitz, van der Kolk, Roth, Mandel, Kaplan, & Resick, 1997).

Through the development and application of these measures and constructs, both the short-term distress and long term psychological harm experienced by victims of interpersonal violence have been well documented. A growing literature also documents the positive effects that psychological interventions may have in a person's ability to overcome the harmful effects of traumatic exposure. A number of studies indicate, for instance, that many individuals who experience symptoms of PTSD can experience a significant diminution in symptoms following clinical intervention (e.g., Foa & Rothbaum, 1998). Less well studied have been the positive ways in which trauma survivors may react to their experience, the variety of outcomes which patients in trauma-focused treatments can attain, and the resilience that survivors may bring to the recovery process (Grossman, Cook, Kepke, & Koenen, 1999; Tedeschi, Park, & Calhoun, 1998). Recent research on resilience in adult trauma survivors suggests that expressions of resilience are multifaceted and complex (Chambers & Belicki, 1998; Grossman et al., 1999; Lam & Grossman, 1997; Liem, James, O'Toole, & Boudewyn, 1997) and that trauma survivors may exhibit both vulnerability and resilience posttrauma across different domains of functioning (Waysman, Salomon, & Schwartzwald, 1998).

If we are to develop clinical interventions that are sensitive to individual differences in trauma impact and responsive to individually varied expressions of resiliency, clinicians need systematic methods by which to assess a trauma survivor's initial and evolving clinical presentation. They also need treatment outcome assessment tools that incorporate but are not limited to the assessment of posttraumatic symptoms and that provide more reliable information than that obtained from self-report measures alone.

AN ECOLOGICAL PERSPECTIVE

Despite considerable advances in the assessment of traumatic exposure and its impact and despite a growing treatment outcome literature, the majority of current measures generally fail to assess complex, multi-

dimensional responses to traumatic exposure. Moreover, they attend little, if at all, to equally salient expressions of trauma recovery and resiliency. The phenomenon of resiliency and the possibility of resilient outcomes posttrauma are particularly neglected by current instruments aimed at assessing trauma impact.

Harvey (1996) draws upon the ecological perspective of community psychology, with its attention to the interplay of person, event and environmental factors in the shaping of human reactions to stress and to the possibility of resilience in the face of extreme stress, to posit a multidimensional view of trauma impact, recovery, and resilience. Specifically, she proposes that individual differences in trauma impact, recovery, and resiliency are variably expressed across eight interrelated domains of psychological experience. Criteria definitive of recovery in each of these domains can be used to assess the multidimensional recovery status of individual trauma survivors, to plan appropriate clinical interventions, and to assess treatment outcome. The recovery criteria in this model, which are outlined in greater detail by Harvey (1996), are:

1. *Authority over memory*, namely, the point in the recovery process at which the trauma survivor is able to choose to recall or not recall the experiences that once eluded meaningful appraisal and/or intruded unbidden into consciousness.
2. *The integration of memory and affect* refers to the survivor's ability to feel what is remembered (i.e., to feel in the present some of the affects that attended the original experience) and to experience new feelings born not only of remembering the past but also of reflecting upon it.
3. *Affect tolerance and regulation* refers to the range of feelings trauma survivors are able to experience and the extent to which they can bear and manage difficult feelings. A hallmark of trauma recovery and a primary goal of trauma-focused treatment is that the survivor gain access to a wide range of feelings and that s/he be able to experience these in a wide but tolerable range of intensities.
4. *Symptom mastery* refers to the degree to which survivors can anticipate, manage, contain, or prevent the cognitive and emotional disruption that arises from posttraumatic arousal. This criterion recognizes that some posttraumatic symptoms will persist. Recovery is apparent not only in the abatement of symptoms, but

also in the survivor's ability to anticipate, manage, and cope with symptoms that will not abate.

5. *Self-esteem* refers to both the experience of self-regard (i.e., regarding oneself as worthy of care) and the capacity for self-care (i.e., the behavioral expression of self-regard). The sign of recovery and the goal of treatment is that the survivor develop a positive sense of self-worth through the practice of healthful, self-caring routines and that s/he experience genuine self-regard.
6. *Self-cohesion* refers to the extent to which survivors experience themselves as integrated or fragmented, in terms of thought, feeling, and action. Recovery is evident whenever a once highly dissociated patient secures understanding and control over the complex dissociative adaptations that may follow upon early and extreme exposure to violence. It is also evident when the survivor whose life was once organized by secrecy and compartmentalization embraces instead a single, integrated expression of self in the world.
7. *Safe attachment* refers to the ability of the survivor to develop feelings of trust, safety, and enduring connection in relationships with others. Recovery from the trauma of interpersonal violence is expressed as a new or renewed capacity for trusting attachment and in the survivor's ability to secure and negotiate personal safety within a relational context.
8. *Meaning making* refers to the process by which a survivor struggles to understand and "metabolize" the impact and legacy of a traumatic past. Recovery is evident not in the "settling" or "setting aside" of the past but rather in the sustained search for understanding, hope, and optimism about the self, others, and the world.

Each of these recovery criteria in fact represents an entire domain of psychological functioning. Depending upon the internal and external resources of the individual and the ecological circumstances that attend traumatic exposure and that evolve posttrauma, any of these domains may or may not be negatively impacted. *Resiliency* is evident whenever a domain is relatively unaffected by the trauma and also when the affected individual is able to mobilize strengths in one domain to secure repair in another. *Recovery* is apparent whenever change from a poor outcome to a desired one is realized in any domain. The ecological framework thus provides a multi-faceted definition of trauma recovery. It offers clinicians, researchers and survivors alike a set of benchmarks against which trauma impact, resilience, and recovery can be assessed and toward which trauma-informed interventions can aim. An assess-

ment instrument located in this framework offers the possibility of addressing a number of methodological concerns as well.

METHODOLOGICAL CONSIDERATIONS

In addition to the theoretical issues warranting a broader, multidimensional approach to the assessment of posttraumatic outcomes, including positive outcomes, a number of methodological considerations call for the creation of new assessment tools. The first of these is, clearly, that most existing measures typically tap only one domain of psychological functioning. Second, because instruments to date have largely focused on the symptomatic aftermath of trauma, they have assessed resiliency and recovery only indirectly (i.e., as the absence or abatement of symptoms). Trauma has a variety of effects, however, not all of which are captured by symptoms. The differences between the "recovered" and the "non-symptomatic" survivor may be quite profound. An adult survivor of childhood sexual abuse, for example, may avoid anxiety symptoms by avoiding intimate relationships. On a self-report measure of symptomatology, she may appear asymptomatic, but in fact her outcome is far different from that of someone who has worked through the trauma and is able to enjoy close relationships with others.

The problems posed by the lack of multidimensional measures of posttraumatic functioning are particularly apparent in assessing treatment outcome. Clinical observations suggest that as patients begin to process memories of childhood sexual abuse, they may become more symptomatic, experiencing anxiety and depressive symptoms which their varied defenses (e.g., dissociation; denial, avoidance) once kept at bay. If recovery status is measured by symptom-focused instruments alone, this heightened distress will appear to be a negative outcome. The progress achieved by a patient who is at last ready to contend with the reality and implications of a traumatic past will go largely unrecorded. A measurement tool that can assess both heightened symptomatology and increased access to and understanding of the traumatic past is required if we are ever to document a complex, multidimensional and multiphasic recovery process. Such a measure would also hypothetically enable time series analyses to predict changes in a patient's functioning in one indexed domain (e.g., Symptom Mastery) from precursor changes in another (e.g., Authority over Memory). Finally, a considerable body of research suggests that people lack cognitive access to many aspects of

their psychological functioning, including both thought processes and emotional processes (Westen, 1997, 1999). This may be particularly true of trauma survivors who as a group are noted for their use of dissociative defenses and who frequently exhibit impairments in both memory and perception. While the administration of paper and pencil self-report measures has a practical advantage over the use of observer-rated measures, independent clinical observation provides crucial information for guiding a complex treatment or objectively assessing treatment outcome. Moreover, a clinically sensitive, observer-rated measure is essential if we are to assess the expressions of strength and resiliency that individual trauma survivors may exhibit with or without treatment.

THE MULTI-DIMENSIONAL ASSESSMENT OF TRAUMA RECOVERY AND RESILIENCY

In order to address the foregoing theoretical and methodological considerations, we have developed a set of assessment tools designed to evaluate posttraumatic outcomes in a multidimensional manner (Harvey & Westen, 1996). These include the Multidimensional Trauma Recovery and Resiliency Scale (the MTRR, a 135 item observer-rated Likert type questionnaire) and a clinically directed interview (the MTRR-I) which can be used alone or as a companion instrument to the MTRR. Both were constructed to operationalize the multidimensional view of trauma impact, recovery, and resilience articulated by Harvey's ecological framework (1996).

Constructing the MTRR

Table 1 provides a sample of items that today comprise the MTRR. In drafting these and other items, we relied upon Harvey's (1996) trauma recovery and resiliency domains, examined existing measures, reviewed recent literature on trauma impact and recovery and drew upon the clinical experience of our research team. A first pool of items was then modified in light of material from in-depth interviews conducted in a small pilot sample. Individual items were then added, deleted, or reworded as necessary. Items were written in plain English rather than jargon, and at a level of specificity likely to minimize inter-rater differences in item interpretation.

TABLE 1. Sample Items from the Multidimensional Trauma Recovery and Resilience Scale (MTRR)

Domain I. Authority Over the Remembering Process	
45	Unwanted thoughts, memories or images intrude on consciousness.
56	Is able to function adaptively after retrieving painful memories, including memories of traumatic events.
Domain II. Integration of Memory and Affect	
9	In recalling painful events (including traumatic events) s/he can remember the feelings experienced at the time.
100	Can reflect upon painful events (including traumatic events) with varied and appropriate feeling.
Domain III. Affect Tolerance and Regulation	
24	Tends to feel emotionally numb.
99	Tends to maintain a realistic view of situations even when emotions are strong.
Domain IV. Symptom Mastery and Positive Coping	
10	Is readily startled.
112	Practices and makes effective use of one or more stress management techniques (e.g., relaxation, meditation).
Domain V. Self Esteem (Self Care and Self Regard)	
41	Experiences impulses to behave in self-abusive ways, such as cutting, burning (whether or not s/he acts on them).
33	Feels worthy of care and nurturance from others.
Domain VI. Self Cohesion	
49	Experiences dissociative states (e.g., feels like s/he leaves her/his body or that her/his feelings are somewhere else).
79	Feels like an integrated person whose actions and emotions fit together coherently.
Domain VII. Safe Attachment	
26	Is able to enter into and maintain safe and mutually satisfying relationships with intimate partners.
127	Is unusually sensitive to (or is preoccupied with) issues of power and control in relationships.
Domain VIII. Meaning	
20	Unreasonably blames her/himself for painful or traumatic experiences from the past.
50	Is able to feel a realistic sense of hope and optimism about the future.

Next, in order to further hone the item pool, we asked 20 clinicians experienced in working with trauma victims to rate two of their patients using the item list. They were also asked to indicate items that seemed ambiguous or inapplicable and to identify any clinical phenomena they felt were missing and should be included in a comprehensive assessment of trauma impact, recovery, and resiliency.

This procedure yielded an initial pool of 113 prospective items. We examined all interitem correlations above .80 to eliminate redundant items and deleted items with minimal variance. We also reworded items that our clinician-raters identified as problematic, and added items they identified as missing. Finally, items within each domain were reviewed in terms of their attention to resilient outcomes and additional items were constructed as needed. Through this process the MTRR was revised to the 135 item form used in an initial series of psychometric investigations. The measure instructs clinical observers (treating clinicians or clinical research interviewers) to rate the applicability of each item to the individual being rated. Ratings are made on a 5-point Likert-type scale that ranged from "Not At All Descriptive" to "Highly Descriptive." Sample MTRR items for each domain are provided in Table 1.

The MTRR Interview (MTRR-I)

The MTRR-I (Harvey, Westen, Lebowitz, Saunders, Avi-Yonah, & Harney, 1994) is a semi-structured clinical research interview that can be used alone or in conjunction with the MTRR to assess trauma impact, recovery, and resiliency. The interview gathers information about an individual's functioning in each of the eight domains. A clinical researcher asks the respondent to provide a relatively free-flowing life narrative, including but not limited to his/her trauma history. Respondents are asked to describe their family background, current familial and social relationships, and their work lives. They are also asked to describe their experience of and ability to manage posttraumatic symptoms, their thoughts and feelings about themselves and others, what has helped them cope and change over time, and their feelings about the future. When used alone, the MTRR-I yields qualitative material that lends itself to narrative methods of inquiry and analysis (Harvey, Mishler, Koenan, & Harney, 2000). When trained researchers rate the MTRR-I using the MTRR, the measure can be used to generate quantitative data, including multidimensional profiles of trauma survivors at different points in time and at different stages of recovery as well as to evaluate the pre- and post-treatment status of trauma patients enrolled in specific courses of care.

THE MTRR: INITIAL PSYCHOMETRIC INVESTIGATIONS

In order to examine the utility of the MTRR for clinical and clinical research purposes, an initial series of four psychometric studies was

conducted. The first three studies examined the inter-rater reliability of the MTRR when used either by clinicians independently rating shared patients, or by clinical researchers independently rating research participants on co-conducted MTRR-Is. The fourth study investigated the construct validity and internal consistency of the MTRR using ratings provided by a nationwide body of clinician respondents.

**STUDIES 1, 2 AND 3:
INTER-RATER RELIABILITY
OF THE MTRR WITH CLINICAL
AND CLINICAL RESEARCH RATERS RATIONALE**

A first step in our research was to assess the inter-rater reliability of the MTRR when independently completed either by two clinicians having shared clinical knowledge of the patient being rated (studies 1 and 2) or by clinical researchers independently rating co-conducted MTRR-Is (study 3). In all studies, we looked at the inter-rater reliability of overall MTRR mean scores and of eight MTRR domain scores (i.e., scores equaling the mean score of items comprising the domain). In studies 1 and 2 (the clinical studies), we also examined the degree of inter-rater reliability attained by each item of the MTRR.

Study 1: Inter-rater reliability between pairs of treatment providers (i.e., group leaders, psychotherapists, psychopharmacologists)

The purpose of this study was to determine the inter-rater reliability of the MTRR when used by pairs of clinicians having shared knowledge of trauma patients already in treatment.

Method

Twenty pairs of MTRR ratings were gathered from clinicians asked to independently complete MTRRs on shared patients. Ten pairs of ratings were gathered from co-leaders of trauma-focused groups, and ten were gathered from clinicians having shared but not necessarily comparable knowledge of these patients (e.g., an individual therapist and a psychopharmacologist). Twenty patients were rated. All were being treated in outpatient mental health settings (e.g., private clinical practice, local public or private clinic). All were women with histories of child sexual abuse, child physical abuse, and/or adult incident rape.

Study 2: Inter-rater reliability between pairs of clinicians at intake interviews (i.e., staff, advanced trainees)

In order to assess the potential utility of the MTRR for clinical assessment, treatment planning, and treatment outcome evaluation, study two examined the inter-rater reliability of the MTRR when used by two clinicians co-conducting initial clinical evaluations.

Method

Thirty-one trauma survivors seeking psychotherapy in a hospital-based outpatient trauma clinic were rated. All had histories of child sexual abuse, child physical abuse, and/or adult incident rape. Each was independently rated on the MTRR by pairs of clinical evaluators. Each pair consisted of a senior clinical staff member and a clinical trainee (pre-doctoral psychology extern, post-doctoral psychology fellow, psychiatric resident, or clinical social work intern) who co-conducted an initial intake evaluation interview.

Study 3: Inter-rater reliability between pairs of clinicians co-conducting the MTRR-I

The MTRR can be used alone by clinicians having clinical knowledge of the patient being rated. The MTRR-I was developed to enable clinical researchers to gather comparable information about a trauma survivor's functioning along the eight domains articulated in the ecological model (Harvey, 1996). The purpose of study 3 was to determine the inter-rater reliability of MTRR ratings yielded by co-conducted MTRR-Is.

Method

Twelve individuals participated in the study. A clinical researcher interviewed each participant. A second member of the clinical-research team observed the interview. Each observer had been trained to use the MTRR by reading transcripts of previously conducted MTRR-Is, rating the transcript material using the MTRR, and discussing discrepancies in ratings with the primary interviewer. The primary interviewer was a licensed clinical psychologist and senior member of the research project. The observers were postdoctoral clinical psychology fellows, advanced

graduate students in clinical psychology or medicine, or other licensed clinicians.

Participants were recruited from local hospitals, a court-based victim advocacy program, and newspaper advertisements. Ten women and two men participated. Two participants had histories of childhood sexual abuse; two had histories of childhood physical abuse; two had lost a loved one to homicide; two were victims of homicide attempts; and four had experienced multiple types of abuse or both childhood and adult-incident trauma. Participants were paid \$20.00 for the interviews, which lasted approximately 90 minutes. The primary interviewer and the observer rated the participant independently immediately following the interview.

Results (Studies 1, 2 and 3)

Results are summarized in Tables 2 and 3. In each of the three studies, Pearson product-moment correlations were computed between the overall scores and each of the MTRR Domain scores (i.e., the mean score for all item ratings within a given domain) yielded by pairs of independently rated MTRRs.

Inter-rater Reliability of Overall MTRR and Eight MTRR Domain Scores: Studies 1, 2, and 3

As indicated in Table 2, the inter-rater reliability of overall MTRR mean scores was significant at or beyond the .01 level in all three studies. In addition, six MTRR domains (Integration of Memory and Affect, Affect Tolerance and Regulation, Symptom Mastery, Self-Esteem, Self-Cohesion, and Meaning Making) yielded inter-rater reliabilities significant at or beyond the .05 level in all three of the studies. The domain of Safe Attachment demonstrated a trend towards significance (i.e., $p < .1$) in studies 1 and 3, and the domain of Authority over Memory achieved significance beyond the .001 level in studies 2 and 3, but failed to achieve significance in study 1.

Inter-Rater Reliability of Items Within Domains: Studies 1 and 2

Studies 1 and 2 examined the inter-rater reliability of items within each of the eight MTRR domains. Pearson product-moment correlations were computed between pairs of ratings and the range of inter-rater reliabilities achieved by items within each domain was determined. Results indicate

TABLE 2. Inter-Rater Reliability of MTRR Scores: Studies 1, 2 and 3

	Study One (<i>N</i> = 20 pairs)	Study Two (<i>N</i> = 31 pairs)	Study Three (<i>N</i> = 12 pairs)
Composite	.64 ^b	.74 ^a	.73 ^b
Authority over Memory	NS	.55 ^a	.89 ^a
Integration of Memory & Affect	.51 ^b	.60 ^a	.71 ^b
Affect Tolerance	.56 ^b	.63 ^a	.63 ^c
Symptom Mastery	.60 ^b	.48 ^b	.69 ^b
Self Esteem	.64 ^b	.69 ^a	.56 ^c
Self Cohesion	.79 ^b	.49 ^b	.84 ^a
Safe Attachment	.39, <i>p</i> < .1	NS	.49, <i>p</i> < .1
Meaning-Making	.78 ^a	.71 ^a	.89 ^a

^a*p* < .001^b*p* < .01^c*p* < .05TABLE 3. Study 4: Inter-Correlations of Mean Scores Across MTRR Domains (*N* = 181)

	1	2	3	4	5	6	7
1. Authority over Memory							
2. Integration of Memory & Affect	.51 ^b						
3. Affect Tolerance	.49 ^b	.44 ^b					
4. Symptom Mastery	.40 ^b	.38 ^b	.39 ^b				
5. Self Esteem	.33 ^b	.31 ^b	.35 ^b	.37 ^b			
6. Self Cohesion	.16 ^a	NS	.22 ^b	.32 ^b	.46 ^b		
7. Safe Attachment	.34 ^b	.36 ^b	.26 ^b	.33 ^b	.39 ^b	NS	
8. Meaning-Making	.44 ^b	.55 ^b	.36 ^b	.61 ^b	.34 ^b	NS	.37 ^b

^a*p* < .05^b*p* < .001

that as presently constituted, all of the eight domains include items which vary greatly in terms of inter-rater reliability (with probabilities ranging from .90 to < .001). However, all domains contain items with inter-rater reliabilities that are significant at or beyond the .05 level in both studies, and six of the eight domains (Affect Tolerance, Symptom Mastery, Self Esteem, Self-Cohesion, Safe Attachment, and Meaning) contain items significant beyond the .001 level in both studies.

STUDY 4: THE VALIDITY OF THE MTRR

Rationale

In Study 4, MTRR ratings were gathered from a nationwide body of clinician respondents in order to assess the internal reliability and construct validity of the MTRR. Construct validity was defined here as the ability of the MTRR to distinguish between trauma patients differing in clinician-estimated recovery status.

Method

In the context of local outpatient mental health settings and local or national conferences on the treatment of psychological trauma, licensed clinicians experienced in treating trauma survivors were asked to complete one to three MTRRs on patients currently or previously in treatment. These clinicians included licensed psychologists, psychiatrists and social workers, all of whom were either working in an outpatient setting specializing in the treatment of traumatized patients or attending a national continuing education trauma-focused conference. All were asked to indicate the nature of the trauma history and to estimate the recovery status (e.g., "largely unrecovered," "partially recovered," or "largely to fully recovered") of the patient being rated. The vast majority of participating clinicians rated only one patient. In all, 181 MTRRs were collected for psychometric examination.

Subjects were 181 adults (86% female and 14% male) in treatment as a result of sexual or physical abuse in childhood, adolescence, or adulthood. Many had experienced multiple types of trauma: 64% were child physical abuse survivors, 62% were child sexual abuse survivors, 45% had experienced adult-incident rape, and 35% were described as combat survivors as well as survivors of childhood physical or sexual abuse. Eighty-two percent of the patients rated were Caucasian, 9% were African American, 8% were Latino, and 1% were Asian American. The mean age of these subjects was 37 years ($SD = 11$, range = 14-62). The average time in current treatment (i.e., with the clinician doing the rating) was 30 months ($SD = 39$, range = less than one month to 240 months). Subjects were also categorized according to their clinician-reported recovery status. Seventeen percent of the subjects were rated as largely recovered, 54% as partially recovered, and 29% as largely unrecovered.

Results (Study 4)

Internal Consistency and Reliability. Table 3 shows the intercorrelation of mean scores across domains. As indicated, subjects who received high ratings on one domain tended to receive high ratings on others. Domain scores on the MTRR clearly are not interchangeable, however, since correlations between domains ranged from .08 to .61, with a mean intercorrelation between MTRR scales of .44.

The internal consistency reliability of the MTRR was analyzed and yielded coefficient alphas of .97 for the composite score, .85 for the authority over memory domain (14 items), .75 for the integration of memory and affect domain (6 items), .88 for the affect tolerance domain (22 items), .80 for the symptom mastery and positive coping domain (17 items), .88 for the self-esteem domain (27 items), .79 for the self-cohesion domain (12 items), .71 for the safe attachment domain (22 items), .83 for the meaning making domain (15 items).

Construct Validity. In order to address the question of construct validity, a multiple analysis of variance (MANOVA) using MTRR subscales as the dependent variable and the broadly defined qualitative index of clinician-estimated recovery status as the independent variable revealed significant main effects for the composite scale and for five of the eight subscales: Integration of Memory and Affect, Affect Tolerance, Symptom Mastery and Positive Coping, Safe Attachment, and Meaning Making. Two domains, Authority over Memory and Self-Esteem, demonstrated a definite trend towards significance (i.e., $p < .06$), while the domain of Self-Cohesion did not yield significant findings. (See Table 4 for means, standard deviations and MANOVA results.)

As would be anticipated, patients identified as "largely to fully recovered" exhibited the least degree of variation across the eight domains and generally appeared less symptomatic and more resilient or recovered on all or most of the eight domains. Conversely, patients described as "largely unrecovered" were more likely to exhibit impairments in multiple domains. Differences between the "partially recovered" and "largely recovered" subjects were evident both in the degree of impairment—or lack of impairment—represented by their domain scores and in the number of domains severely impacted.

DISCUSSION

This paper describes the psychometric characteristics of a new clinician-rated measure of trauma recovery and resiliency as revealed by an

TABLE 4. Study 4: MANOVA Results for MTRR Scores by Recovery Status ($df = 2$, $N = 141$)

	Recovery Status	<i>M</i>	<i>SD</i>	<i>F</i>
Composite	1	3.04	.25	12.65 ^a
	2	2.86	.25	
	3	2.71	.28	
Authority over Memory	1	3.12	.32	2.87 ^c
	2	3.03	.39	
	3	2.90	.45	
Integration of Memory & Affect	1	3.60	.53	13.42 ^a
	2	3.27	.61	
	3	3.20	.65	
Affect Tolerance	1	3.24	.29	3.84 ^b
	2	3.17	.30	
	3	3.04	.37	
Symptom Mastery	1	3.11	.42	10.83 ^a
	2	2.92	.41	
	3	2.65	.43	
Self Esteem	1	2.80	.27	2.82 ^c
	2	2.62	.34	
	3	2.62	.38	
Self Cohesion	1	2.44	.48	NS
	2	2.68	.54	
	3	2.62	.49	
Safe Attachment	1	3.13	.48	14.40 ^a
	2	2.75	.29	
	3	2.67	.40	
Meaning	1	3.22	.42	21.44 ^a
	2	2.77	.53	
	3	2.38	.53	

^a $p < .001$ ^b $p < .05$ ^c $p < .06$

Recovery status: 1 = largely to fully recovered; 2 = partially recovered; 3 = largely unrecovered.

initial series of four psychometric studies. Together the studies constitute a first effort to document the promise of translating an ecological view of psychological trauma and trauma recovery (Harvey, 1996) into a psychometric tool capable of assessing the multidimensional nature of trauma impact recovery and resiliency. The measure demonstrated reasonable reliability and validity in both clinical and clinical research samples, supporting the utility of the MTRR in the detection and assessment of not only trauma symptoms, but also domain-specific expressions of trauma recovery and resiliency.

The first three studies focused on inter-rater reliability of the 135-item measure. Inter-rater reliability of overall MTRR mean scores

was significant beyond the .01 level in all three studies. Inter-rater reliabilities on the MTRR subscales were also generally positive in each of the three studies, with the exception of Safe Attachment (which yielded unimpressive results in one of the reliability studies and a strong trend towards significance in the other two) and Authority over Memory (which yielded significant results in two of the three studies, but failed to do so in the third). It should be noted that these studies were conducted in the context of a heavily burdened outpatient trauma clinic in which staff and trainees participate in research activities on an "as feasible" basis. The demands of the clinical environment ultimately placed a limit on sample size in these investigations. Small sample size in turn requires that these findings be viewed as preliminary. Future studies utilizing larger samples are required and are in process.

It should be noted, too, that the three reliability studies differed from one another in terms of the nature and comparability of the knowledge base available to the pairs of observers who were completing the MTRR ratings, i.e., shared knowledge of patients in treatment in Study 1, shared impressions of patients at clinical intake in Study 2, and shared knowledge of interview material in Study 3. Such differences no doubt account for at least some of the variation in domain reliabilities across the three studies. It may be, for example, that Safe Attachment can be more reliably assessed either in an in-depth clinical research interview or in the context of an on-going treatment relationship, but not at clinical intake. Despite these differences, however, the findings here suggest that the measure has potential utility in all three conditions.

As ought be anticipated with a measure of this length, item inter-rater reliabilities varied considerably, indicating that each domain of the MTRR contains items with inter-rater reliabilities ranging from quite poor to quite good. These data as well as the overall length of the 135-item measure suggest a need to prune the measure of less psychometrically sound items. Despite the item variations, however, overall MTRR scores achieved sound inter-rater reliability in all three studies, as did a majority of the domain scores.

The fourth study reported here examined the internal consistency and construct validity of the MTRR. The eight scales of the MTRR had a mean alpha of .81, which is considered an acceptable minimal alpha for widely used scales, as defined by Carmines and Zeller (1979) and others, who suggest a minimal alpha of .80. The low standard error associated with this level of reliability has implications for within-subject comparisons (or "profiles") of MTRR scale scores. As noted by Anastasi (1988), the interpretation of scale differences must take into

account the extent to which the standard errors of their respective scores are exceeded by their difference.

Construct validity of the MTRR was assessed by examining its association with a simple measure of clinician-reported recovery status in a nationwide sample of 181 subjects rated by their treating clinicians because a putative measure of trauma recovery and resiliency would be expected to vary accordingly with other measures of recovery. Findings confirmed this expectation. Indeed, subjects rated by their clinicians as largely recovered indicated greater recovery and fewer symptoms on each of the eight MTRR scales. Equally important, those patients who were rated as "partially recovered" showed greater variation in their domain scores than either those who were rated "largely recovered" or "largely unrecovered." Finally, results of these studies suggest that the domains are conceptually distinct, although moderately correlated with each other.

Results of the first three studies reported provide strong initial evidence for the reliability, validity, and utility of the MTRR. The functioning of trauma survivors can be assessed both across and within the domains highlighted by the ecological framework. The findings give credence to the notion that trauma impact, trauma recovery, and resilience in the aftermath of traumatic exposure are not global phenomena. Instead, trauma survivors may experience profound impact and harm in some domains of functioning while exhibiting considerable resiliency in others. The relatively wide variety of symptoms and strengths addressed by the MTRR may support its use not only as a tool for clinical evaluation and treatment outcome assessment but also as a more generic research tool for use in testing hypotheses about trauma recovery and resiliency.

That the MTRR can be used reliably by both clinicians and clinical researchers is an important finding. It suggests that the instrument has utility with both clinical and community samples of trauma survivors and that comparisons may be possible between those trauma survivors who rely more on psychotherapy for assistance with their recovery and those who rely mainly on informal community resources.

The data further suggest that the MTRR has the power to make distinctions between trauma survivors at different stages of recovery. This finding, in particular, suggests that the MTRR may have value as a tool for assessing treatment outcome both within and across the indexed domains. If it can be determined that clinicians treating a given patient and clinical researchers administering the MTRR to that same patient would agree in their ratings, then the potential of the measure for assessing

treatment outcome in a manner meaningful to clinicians would seem to be particularly high. Clearly, this is among the next psychometric studies required.

Limitations and Future Directions

A number of limitations of the present studies should be considered. First, a wide majority of the subjects rated in the two studies were women, most of them Caucasian and most with histories of intrafamilial physical or sexual violence. Generalizing findings to male survivors of physical or sexual violence, to women survivors of other types of trauma, and to women and men of different race, culture, and ethnicity cannot be done with confidence until data are more systematically collected from the samples which are missing or largely underrepresented in these studies. Current studies are gathering MTRR ratings on a wider array of subjects and from a wider array of traumatized populations. The MTRR and the MTRR-I have been translated into Spanish for use in a study of resiliency and social support in a sample of untreated Central American women refugees of war trauma (Radan, 2000), and into French for use in a dissertation study of adolescent sexual assault victims pre- and post-treatment (Daigneault, in progress). Other cross-cultural studies are being planned.

A second sampling limitation lies in the fact that although we have gathered MTRR ratings from both treating clinicians and clinical researchers co-conducting the MTRR-I, most of the individuals interviewed had some history of involvement in clinical care. We do not have much in the way of data on untreated trauma survivors. Until we have gathered data from community samples comprised primarily of untreated survivors who differ from one another in their overall recovery status and in their domain-specific expressions of resilience, the supposition that the recovery domains and criteria highlighted by this measure have equal applicability to treated and untreated populations remains a supposition. Systematic studies of untreated trauma survivors are required and are underway.

Third, the data gathered in these initial investigations suggest the need for modifications of the existing measure as well as further scale validation. For example, the measure should be shortened for both ease of clinical administration and for improved reliability. Domains with lower inter-rater reliability in one or more studies are currently being examined with an eye towards identifying and eliminating or revising problematic items. In addition, factor analyses will be conducted to

learn more about the nature of specific domains. In one such study, for example, the results of a domain-specific factor analysis suggest that the domain of safe attachment may consist of three separate components: a capacity to form relationships, the ability to maintain personal safety in the context of intimate relationships, and the appropriate use of power in relationships (Tummala, Liang & Harvey, 1999).

Finally, while the very broadly defined phenomenon of clinician-estimated recovery status provides a reasonable "first-pass" means of examining the MTRR's potential for distinguishing between trauma survivors at various stages of recovery and at various points in a treatment process, future inquiries must apply more stringent criteria. The construct validity of the eight domain scales should be assessed by comparing them with standardized measures reflecting similar constructs. We would expect, for example, that ratings assigned to PTSD items on the MTRR would correlate positively with standardized PTSD scales, that scores in the domain of self esteem would correlate positively with an established measure of self esteem, and that MTRR scores in the domain of safe attachment would correspond to one or another measure of adult attachment capacity. Comparisons such as these have been incorporated into two doctoral research investigations (Bradley, 2000; Davino, 2000).

Despite these limitations, the results of these initial psychometric studies suggests that the MTRR shows conceptual and empirical promise as an instrument able to assess a wide range of responses to trauma, including posttraumatic psychopathology and multidimensional expressions of resiliency and recovery. Moreover, it may harness clinical observation in a reliable way that avoids the limitations of self-report methods. Its reliability when applied by both clinicians and clinical research interviewers without any specific training in the theoretical framework from which it was developed renders it particularly useful for community studies, and suggests potential use as a psychometrically sound, clinically valid research instrument. Moreover, and perhaps most important, it offers to clinicians and clinical researchers a means of assessing the positive expressions of recovery and resiliency currently neglected by virtually all trauma assessment measures.

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